

# Atharv Arora

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| Mumbai, Maharashtra, India

| [www.atharvsarora.com](https://www.atharvsarora.com)

Engineer with a strong foundation in system design, cloud infrastructure (AWS), and high-performance data processing. Delivered robust backend solutions across fintech and early-stage startups. Currently applying ML and statistical techniques to financial and real-world datasets. Passionate about Mathematics, Computer Science, Software Engineering, and AI.

## Professional Experience:

**J.P. Morgan Chase and Co. | Corporate & Investment Bank (CIB)**

**Mumbai, India**

**Associate - US Interest Rate Derivatives Quant**

**January 2024 - Present**

*Collaborating closely with the New York team covering cash, Treasuries, TIPS, short duration, and macro strategy*

- **Developed and analysed strategies** on derivatives across **Interest rate products including swaps, swaptions, swap spreads, and futures** enhancing **client portfolios and risk-return profiles**.
- Implemented a proprietary **Bond Analytics Module**, enabling **scenario analysis for portfolios across rate hike/cut environments and curve shifts**, and increased coverage by **100+** instruments, including **off-the-run Treasuries**.
- Led **modernization of legacy option pricing and risk tools and 40 reports (C++)** into **scalable, modular python** systems, improving maintainability and integration across teams and products.
- **Priced the options and valued delivery option value** using **binomial trees**, and **estimated wildcard** scenarios for **vanilla and EOM options on futures contracts for tenor specific treasury baskets**.

**AStratInvest**

**Mumbai, India**

**Quantitative Researcher Developer - Founding Member**

**July 2023 - January 2024**

- **Designed and implemented** the firm's **initial data pipeline and infrastructure** to support **technical analysis, signal generation, and model validation** across **multiple asset classes**.
- Created **ETL processes and automated workflows**, enabling **real-time data ingestion, data preprocessing, and storage for high-frequency trading and daily trading models**.
- Conducted **research and backtesting of trading strategies** on a **\$6M portfolio**, focusing on **risk-adjusted returns, drawdown control, and position sizing** and helped achieve **100% CAGR** through **dynamic strategy refinement, performance monitoring, and tactical allocations**.

**Wekalp**

**Mumbai, India**

**Software Engineer, CEO's Office**

**August 2022 - January 2024**

- Founding Engineer built 3 proprietary regex-based modules: **Data Quality (error detection/cleaning)**, **Pattern Analysis (cross-date anomaly detection)**, and **Reconciliation (same-date anomaly detection)**.
- Implemented modern backend systems from scratch with **SQL-based databases with AWS (S3)**, cutting infrastructure costs by **~75%** through storage efficiency (parquets) and algorithmic optimisation.
- Wrote **high-performance Python code** (using Pandas, NumPy, and financial libraries), reducing computation time for data pipelines by **70%** on large financial datasets (**~10M+ rows**).

## Education:

**B.E in Electrical and Electronics Engineering**

**Birla Institute of Technology and Science (BITS), Pilani**

**Pilani, Rajasthan, India**

**August 2018 - May 2022**

## Research Experience:

**Undergraduate Researcher at BITS, Pilani**

**Pilani, Rajasthan, India**

**Authored Thesis Titled "Applications of AI and IOT in Healthcare"**

**January 2022 - May 2022**

- Documented the trajectory of **AI and IOT** in the field of **Medical Diagnostics** over the years, noting the progress made by **NVIDIA** in the AI/ML Space, owing to their GPU Progress and their possible upsides in the field. Tested **NVIDIA Jetson Nano/Xavier Kits** to recreate compute speeds and results.
- Discussed **Loss Functions, Accuracy Parameters and Optimizers** used, along with **AIAA, Privacy Preserving Federated Learning, Transfer Learning, AUTOML and AMP**. Applied these techniques to **Medical Imaging**.

## Skills:

- **Areas** - Software Development, Machine Learning, Deep Learning, Generative AI, Artificial Intelligence.
- **Math** - Probability and Statistics, Stochastic Processes and Calculus.
- **Programming Languages** - C, C++, Java, Rust, Python, R, SQL, CUDA, Mojo.
- **Techniques** - System Design, Software Architecture, Algorithmic Optimization, Cloud Computing, Transformers.
- **Computer Science** - Data Structures and Algorithms, Microservices Architecture, CI/CD.
- **Finance** - Options Pricing, Black Scholes Merton Model, Monte Carlo Simulations, Treasuries and Fixed Income.
- **Miscellaneous** - LLMs, PyTorch, Tensorflow, Performance Optimization, High-Performance Data Processing.